

Salaries  
 Extraneous Supplies  
Application For Research Grant

Overhead  
 Other

Date: September 29, 1954

*Smoking techniques -  
 not too bad  
 Can animal refuse? 3.00  
 During puff 3.00  
 How much smoke  
 in lungs?*

1. Name of Investigator: George E. Moore, M.D., Ph.D. and Fred Bock, M.S.

2. Title: Director, Roswell Park Memorial Institute is under the Public Health Department of New York State. Its major interest is study of the etiology, development, cause and nature of malignancy.

3. Institution & Address: Roswell Park Memorial Institute, Buffalo 3, N.Y. (Health Research, Inc., Non-profit corporation for the administration of research projects for the staff of the above named Institute.)

4. Project or Subject: An investigation of the physiological effects of direct inhalation of tobacco smoke by laboratory animals and the study of the biological response of laboratory animals to continuous ingestion of diet-tobacco product mixtures.

Additional information: The Institute maintains its own animal colonies and is presently at the Institute engaged in biological research. The project is already pertinent to the research at hand. The most important reason for additional personnel to care for the large number of animals is a need for experienced and far skilled technicians to aid in the construction of special smoking chambers. This problem was previously stated in a request dated Sept 1953.

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5. Detailed Plan of Procedure (Use reverse side if additional space is needed): Several chambers have been designed to expose small laboratory animals directly to the mainstream smoke of tobacco products. This method has the following advantages:

- (1) The mainstream smoke enters the nose directly. This avoids the "fall-out" inherent in the introduction of smoke into large chambers.
- (2) Uniform temperatures and rate of burning can be obtained.
- (3) Ease of performing toxicity tests with various tobacco products, filter tips, etc.
- (4) Adaptation to smoking animals with tracheotomies.

One such apparatus (figure 1B2) has been used for nine months. A uniform two-second puff of smoke is drawn into the animal chamber every minute. The interval can be varied with the use of a variable transformer. The first model (illustrated) had six units. Our present model has six eight units, each of which serve two chambers. The direct distance between the chamber and cigarette has been shortened to two centimeters. The experiments to date have been limited to methodology and toxicity studies of several strains of mice. There are definite strain differences. In general, the mice maintained a normal growth curve with exposure to the smoke of six cigarettes per day. Each mouse is in the chamber about one hour and thirty minutes. The mice are smoked as early in the day as possible so as to reduce the effect upon nocturnal feeding.

(3) Use of tobacco products processed by cigarette makers for experimental purposes.

(5) Use of animal cages with special design for smoking.

(7) Use of the experimental design of mice and cigarette products.

5 continued--

With additional support it is proposed to:

- (1) Enlarge the experimental groups of mice and include additional strains by the construction of additional smoking "machines."
- (2) Include guinea pigs, hamsters and rats in similar studies with the construction of special chambers.
- (3) Test tobacco products processed in different ways for their physiological reactivity.

(4) Briefly study the biological effectiveness of cigarette filters.

(5) Investigate the possibility of maintaining small animals with tracheotomies and exposing them to tobacco smoke.

(6) Enlarge present program involving studies of the biological response of various laboratory animals to the continuous ingestion of food-tobacco product mixtures for long periods of time.

Facilities available include animal laboratories and chemical laboratories. Other studies concerned with tobacco tar fractionation are being pursued concurrently. Staff members with wide knowledge in the fields of biophysics, biochemistry and biology are available for consultation.

The monies requested are for support in addition to that furnished by New York State.

This grant request is by Health Research, Inc., which is a non-profit membership corporation for the purpose of administering bequest funds, grants, and fellowships designated for research at Roswell Park Memorial Institute. This arrangement allows us to circumvent State financial policies. It is being used for administering grants from the American Cancer Society, U.S.P.H. and others at the present time.

of tobacco smoke and the health of the population.

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Date: September 20, 1954

Application for Research Grant

320 FIFTH AVENUE NEW YORK 1, N. Y.  
TOBACCO INDUSTRY RESEARCH COMMITTEE

## 6. Budget Plan:

Salaries  
Expendable Supplies  
~~Application for Federal Funds~~  
~~Permanent Equipment~~  
Overhead  
Other

8,400.00

**760.00**

**.262.40**

1990

**\$30,542.40**

Date: 30.11.2013 Total: 2.42

7. Anticipated Duration of Work: 3 years, B.S., M.S. and Post Doc, Ph.D.

8. Facilities and Staff Available: Roswell Park Memorial Institute is under the Public Health Department of New York State. Its major interest is study of the etiology, diagnosis, cause and nature of malignancy.

3. Institute: A full time permanent research and clinical staff numbering approximately 100 are present. Basic research units include Biochemistry-- Dr. Pressman, Chief; Biology--Dr. Hauschka, Chief; Biophysics-- Dr. Hoffman, Chief; ~~Physiology~~ and

Ample laboratory facilities and instruments are available for general support of research problems. The Institute maintains its own animal colonies and can provide inbred animals for most studies, subjects of direct observation, and the study of the biological problems.

9. Additional Requirements: The project requirements for this request are above and in addition to the staff presently at the Institute engaged in biological research, some of which is directly pertinent to the request at hand. The most important need is for additional personnel to care for the large number of animals to be used in experiments and for skilled machinists to aid in the construction of special smoking chambers. (See previous preliminary grant request dated September 14th forwarded to Dr. C. C. Little, Chairman.)

10. Additional Information (Including relation of work to other projects and other sources of supply):

At the present time related research is being carried on at the Institute as follows:

(1) Fractionation of tobacco tar and testing of individual fractionations for carcinogenicity.

(2) Preliminary experiments concerned with the toxicity of tobacco products added to the diet of laboratory animals.

the (3) Design of individual chambers for the direct smoking of small laboratory animals.

The first question (regarding the) has been very well answered. The second part of the question is also very well answered. The third part of the question is also very well answered. The fourth part of the question is also very well answered. The fifth part of the question is also very well answered. The sixth part of the question is also very well answered. The seventh part of the question is also very well answered. The eighth part of the question is also very well answered. The ninth part of the question is also very well answered. The tenth part of the question is also very well answered.

Signature /s/ George E. Moore, M.D.  
Director of Project

Director, Roswell Park Memorial Institute  
Deputy Treasurer, Health Research, Inc.

Business Office of the Institution

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Proposed Budget for One Year (from previous preliminary grant dated  
September 14, 1954)

I PERSONNEL

(1) two machinists (part-time for 6 months)	\$2,300.00
(2) two animal attendants at \$2,800	5,600.00
(3) Senior laboratory animal caretaker \$3,100	3,100.00
(4) Principal laboratory technician \$3,920	3,920.00
(5) Research biologist (70% part-time)	4,200.00

II PERMANENT EQUIPMENT

(1) Vacuum pumps (2)	410.00
(2) Drying oven	350.00

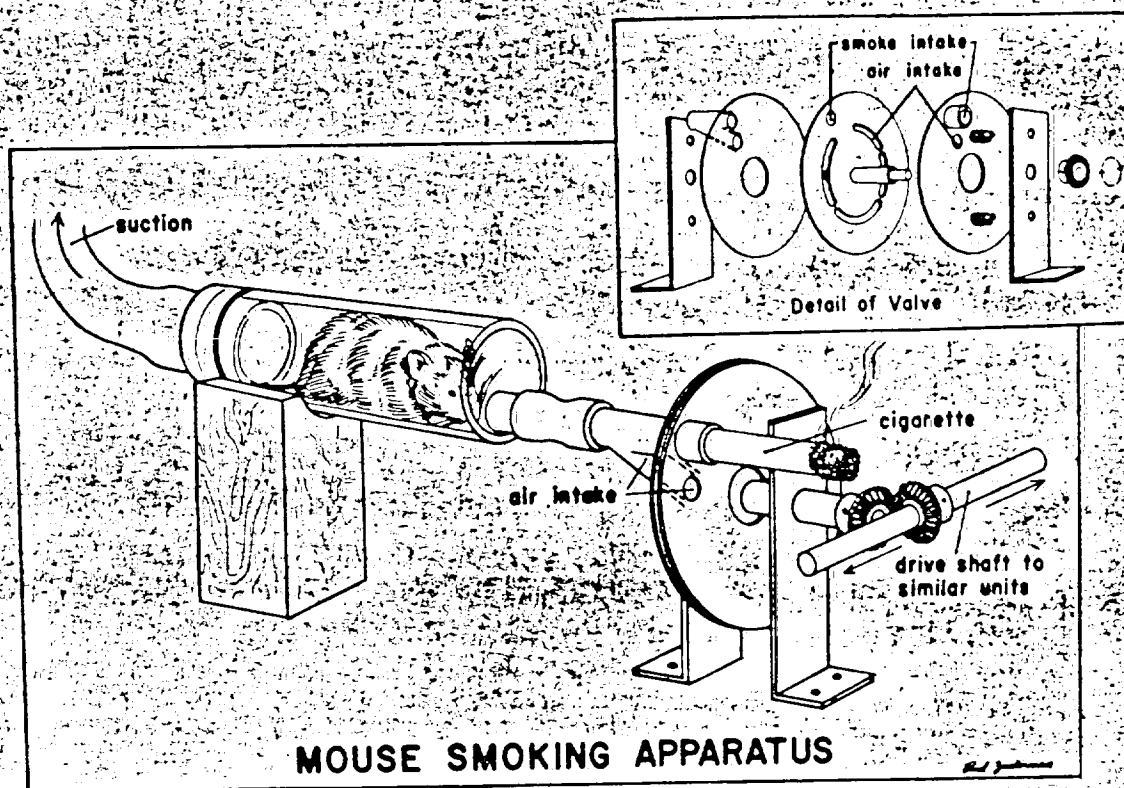
III SUPPLIES

(1) Food, sawdust, etc., for mice and rats (partial support)	3,500.00
(2) Tobacco products (partial support)	2,400.00
(3) Glassware, slides, cover slips, etc.	400.00
(4) Brass tubing, gears, lucite, clock motors, etc. for construction of smoking apparatus	2,100.00

INSTITUTIONAL OVERHEAD 8% 2,262.40

TOTAL \$30,542.40

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